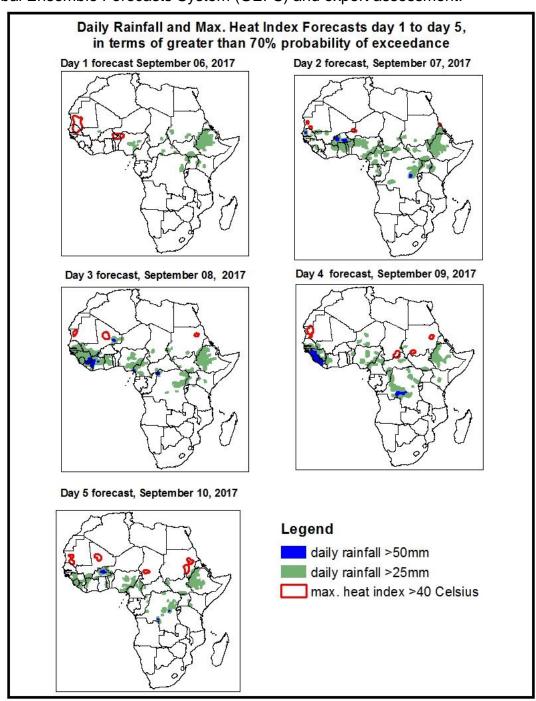
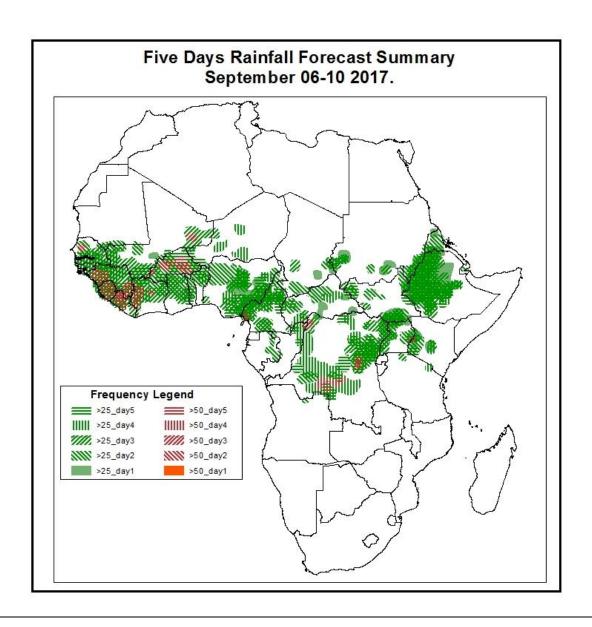
NCEP Contributions to the WMO Severe Weather Forecasting Demonstration Project (SWFDP) and to the African Monsoon Multidisciplinary Analysis (AMMA) Initiative

- **1. Rainfall, Heat Index and Dust Concentration Forecasts,** (Issued on September 05, 2017)
- **1.1. Daily Rainfall and Maximum Heat Index Forecasts** (valid: September, 06-10 2017)

The forecasts are expressed in terms of high probability of precipitation (POP) and high probability of maximum heat index, based on the NCEP/GFS, ECMWF and the NCEP Global Ensemble Forecasts System (GEFS) and expert assessment.

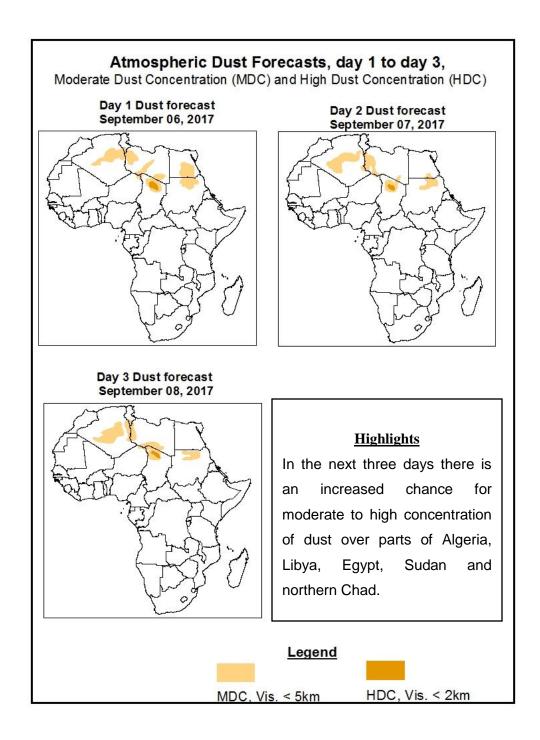




Highlights

In the next five days, a strong monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel countries coupled with upper level divergence is expected to enhance rainfall over many places in West and Central African countries. Active lower-level convergence over north east Angola to southern DRC towards the Lake Victoria is also expected to enhance rainfall in the region. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, southern Mali, northern Cote D'Ivoire, Burkina Faso, Ghana, Togo, northern Benin, and parts of Nigeria, parts of Cameroon, parts of CAR, parts of DRC, western Uganda, Ethiopia and Eritrea.

1.2. Atmospheric Dust Concentration Forecasts (valid: September 06-08 2017) The forecasts are expressed in terms of high probability of dust concentration, based on the Navy Aerosol Analysis and Prediction System, NCEP/GFS lower-level wind forecasts and expert assessment.



1.3. Model Discussion, Valid: September 06-10 2017

The Azores High Pressure system over the North Atlantic Ocean is expected to gradually weaken from its central pressure value of 1032hpa to 1030hpa towards the end of the forecast period.

The St. Helena High Pressure system over the Southeast Atlantic Ocean is expected to gradually intensify from its central pressure value of 1029hpa to 1038hpa towards the end of the forecast period.

The Mascarene High Pressure system over the Southwest Indian Ocean is expected to intensify from its central pressure value of 1030hpa to 1033hpa in the next 72hours and thereafter weakens to 1028hpa towards the end of the forecast period.

The heat low over western Sahel is expected to slightly deepen from its value of 1008hpa to 1007hpa in the next 48hours and then later after another 24hours fills up back to its value of 1008hpa and thereafter deepens to 1005hpa towards the end of the forecast period.

Over the central Sahel, the heat low is expected to deepen up from 1010hpa to 1007hpa towards the end of the forecast period.

Over the Sudan area, the heat low is expected to maintain its value of 1006hpa in the next 72hours and then deepen to 1004hpa towards the end of the forecast period.

At 925hPa, there is a convergence which is dominated by the continental winds over the Sudan area while the central Sahel and west Sahel regions are dominated by the maritime winds towards the end of the forecast period. Therefore, the undulation of the trough line tilts more to the north in the central and west Sahel regions.

Another convergence is established over north east Angola towards southern DRC with the trough line extending towards Lake Victoria moving to the north east direction during the forecast period.

The dry north easterlies propagating from the subtropical high pressure over North Africa will result to sustained spreading and transport of the dust over Algeria, Libya, Egypt, Sudan and northern Chad.

At 850hPa, there is a cyclonic circulation over West Africa with series of vortices which are mostly dominated by continental winds in the next 72hours and thereafter the maritime winds retard the continental winds over the central Sahel and the Western Sahel region moving westward and extending to the coasts towards the end of the forecast period.

The convergence zone over central and some parts of east Africa is intensifying and continually developing with a slight propagation to the south eastern direction towards the end of the forecast period.

At 700hPa, there is the divergence of an easterly flow from the subtropical high pressure system over West Africa to its coasts towards the end of the forecast period.

Divergence over central, eastern and the southern part of Africa predominate and persist over regions.

In the next five days, a strong monsoon flow from the Atlantic Ocean across West and Central Africa combined with a lower-level cyclonic circulation propagating across the Sahel countries coupled with upper level divergence is expected to enhance rainfall over many places in West and Central African countries. Active lower-level convergence over north east Angola to southern DRC towards the Lake Victoria is also expected to enhance rainfall in the region. As a result, there is an increased chance for two or more days of moderate to heavy rainfall over many places in Senegal, Gambia, Guinea Bissau, Guinea, Sierra Leone, Liberia, southern Mali, northern Cote D'Ivoire, Burkina Faso, Ghana, Togo, northern Benin, parts of Nigeria, parts of Cameroon, parts of CAR, parts of DRC, western Uganda, Ethiopia and Eritrea.

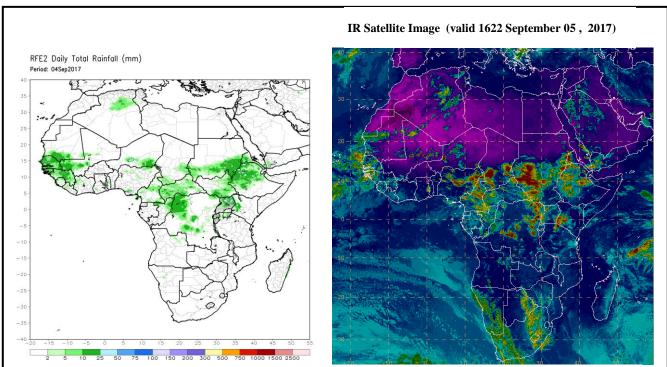
2.0. Previous and Current Day Weather over Africa

2.1. Weather assessment for the previous day (September 04, 2017)

Moderate to locally heavy rainfall was observed over parts of Southern Mauritania, Senegal, Guinea, Southern Mali, parts of Cameroon, CAR, pats of DRC, Southern Sudan, parts of South Sudan, Uganda, Ethiopia and Eritrea.

2.2. Weather assessment for the current day (September 05, 2017)

Intense convective clouds are observed over portions of West, Central and East Africa.



Previous day rainfall condition over Africa (Left) based on the NCEP CPCE/RFE and current day cloud cover (right) based on IR Satellite image.

Authors: Umar M. Karaye (Nigeria– NIMET)/ (CPC-African Desk); <u>umar.karaye@noaa.gov</u> Mahdi F Ismael (Djibouti-ANM)/ (CPC-African Desk); <u>mahdi.fouad@noaa.gov</u>